

## CLAIMS:

1. An optical recording medium comprising a recording layer in which a record mark can be formed by projecting a laser beam thereonto, a first dielectric layer disposed on the side of the recording layer on which  
5 a light incidence plane through which the laser beam enters is present, a second dielectric layer disposed on the side of the recording layer opposite from that on which the light incidence plane is present, a heat radiation layer disposed on the side of the first dielectric layer on which the light incidence plane is present and a reflective layer disposed on the side of  
10 the second dielectric layer opposite from that on which the light incidence plane is present, the recording layer containing a phase change material represented by an atomic composition formula:  $\text{Sb}_a\text{Te}_b\text{Ge}_c\text{Mn}_d$ , where  $a$  is equal to or larger than 55 and equal to or smaller than 70,  $c$  is equal to or larger than 4 and equal to or smaller than 10,  $d$  is equal to or larger than  
15 10 and equal to or smaller than 20,  $a/b$  is equal to or larger than 2.8 and equal to or smaller than 3.5 and  $a/d$  is equal to or larger than 3.0 and equal to or smaller than 6.0, in an amount equal to or more than 95 atomic %.
- 20 2. An optical recording medium in accordance with Claim 1, wherein the heat radiation layer contains aluminum nitride as a primary component.
3. An optical recording medium in accordance with Claim 2, wherein  
25 the heat radiation layer is formed of a material containing 90 atomic % or more aluminum nitride.
4. An optical recording medium in accordance with Claim 1, wherein

the reflective layer contains Ag or alloy containing 90 atomic % or more of Ag.

5. An optical recording medium in accordance with Claim 2, wherein  
5 the reflective layer contains Ag or alloy containing 90 atomic % or more of Ag.

6. An optical recording medium in accordance with Claim 1, wherein  
the first dielectric layer is formed so as to have a thickness of 10 nm to 40  
10 nm.

7. An optical recording medium in accordance with Claim 1, wherein  
the second dielectric layer is formed so as to have a thickness of 3 nm to  
16 nm.

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8. An optical recording medium in accordance with Claim 1, which  
further includes data for setting recording conditions written therein and  
indicating that the phase change material represented by the above  
atomic composition formula and contained in the recording layer has such  
20 a composition that  $a$  is equal to or larger than 55 and equal to or smaller  
than 70,  $c$  is equal to or larger than 4 and equal to or smaller than 10,  $d$  is  
equal to or larger than 10 and equal to or smaller than 20,  $a/b$  is equal to  
or larger than 2.8 and equal to or smaller than 3.5 and  $a/d$  is equal to or  
larger than 3.0 and equal to or smaller than 6.0 and that a linear  
25 recording velocity equal to or higher than 14 m/sec and lower than 21  
m/sec is a preferable linear recording velocity of data.

9. An optical recording medium in accordance with Claim 2, which

further includes data for setting recording conditions written therein and indicating that the phase change material represented by the above atomic composition formula and contained in the recording layer has such a composition that  $a$  is equal to or larger than 55 and equal to or smaller than 70,  $c$  is equal to or larger than 4 and equal to or smaller than 10,  $d$  is equal to or larger than 10 and equal to or smaller than 20,  $a/b$  is equal to or larger than 2.8 and equal to or smaller than 3.5 and  $a/d$  is equal to or larger than 3.0 and equal to or smaller than 6.0 and that a linear recording velocity equal to or higher than 14 m/sec and lower than 21 m/sec is a preferable linear recording velocity of data.

10. An optical recording medium in accordance with Claim 4, which further includes data for setting recording conditions written therein and indicating that the phase change material represented by the above atomic composition formula and contained in the recording layer has such a composition that  $a$  is equal to or larger than 55 and equal to or smaller than 70,  $c$  is equal to or larger than 4 and equal to or smaller than 10,  $d$  is equal to or larger than 10 and equal to or smaller than 20,  $a/b$  is equal to or larger than 2.8 and equal to or smaller than 3.5 and  $a/d$  is equal to or larger than 3.0 and equal to or smaller than 6.0 and that a linear recording velocity equal to or higher than 14 m/sec and lower than 21 m/sec is a preferable linear recording velocity of data.

11. An optical recording medium in accordance with Claim 8, wherein data for setting recording conditions indicating that a ratio  $Pe/Pw$  of an erasing power of a laser beam  $Pe$  to a recording power  $Pw$  thereof should be determined to be equal to or larger than 0.3 and equal to or smaller than 0.7 are further written in the optical recording medium.

12. An optical recording medium in accordance with Claim 9, wherein data for setting recording conditions indicating that a ratio  $P_e/P_w$  of an erasing power of a laser beam  $P_e$  to a recording power  $P_w$  thereof should be determined to be equal to or larger than 0.3 and equal to or smaller than 0.7 are further written in the optical recording medium.

13. An optical recording medium in accordance with Claim 10, wherein data for setting recording conditions indicating that a ratio  $P_e/P_w$  of an erasing power of a laser beam  $P_e$  to a recording power  $P_w$  thereof should be determined to be equal to or larger than 0.3 and equal to or smaller than 0.7 are further written in the optical recording medium.

14. An optical recording medium in accordance with Claim 1, ID data for identifying the optical recording medium are written therein.

15. An optical recording medium in accordance with Claim 2, ID data for identifying the optical recording medium are written therein.

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16. An optical recording medium in accordance with Claim 4, wherein ID data for identifying the optical recording medium are written therein.